STEP 1. SETTING UP THE ANALYSIS

Purpose

This roads analysis has been prepared to assess the condition and needs of the roads on the District. The impetus for creation of this report is the need to evaluate road and watershed conditions prior to development of an environmental impact statement (EIS) to consider the effects of additional gas leasing and development. Information generated from the roads analysis process will contribute to the watershed condition assessment also under development, and both will serve as the basis for the description of the affected environment in the EIS.

The District's roads management objective is to have orderly development of gas resources while minimizing the impact of roads on the ecosystem. As gas development continues to increase, so will road density and maintenance needs. To date, the District has obliterated all roads that were feasible. As wells are plugged and abandoned, each access road serving a well would be evaluated to determine whether it is needed. Some of the issues related to roads described in this document may be used to assist the Forest Service staff in evaluating the status and need for these roads.

Products

The product of this analysis is a report for decision makers that documents the information and analyses used to identify opportunities and set priorities for management of the road system. It identifies road-related environmental and public safety risks and provides recommendations for road improvements. The key products of this District-level roads analysis include the following:

- A map that displays the existing level 1 and 2 roads on the forest, and the roads that are gated and open.
- A road risk matrix that identifies 4 categories of roads that were evaluated on a road-by-road basis.
- A map and list of the high-risk roads to be further inventoried for site-specific maintenance planning.
- Identification of areas of low road density that should be considered for preservation.
- Recommendations to treat site-specific road problems to the extent possible with existing information
- A narrative response to the 71 questions from Forest Service-643 that are relevant to the District.

Objectives of the Analysis

The analysis will:

- Be at the District scale, 153,056 acres (239.2 square miles) of National Forest.
- Include a review of all existing roads in the Jicarilla Ranger District of the Carson National Forest.
- Provide data that will be used to contribute to the 5^{th}-order watersheds in the Watershed Condition Assessment.
- Concentrate on maintenance level 1 and 2 roads.
- Be spatial or Geographic Information System (GIS)-based whenever possible.

- Use only existing information.
- Use information that is consistent with that used in the Carson National Forest Plan revision effort.
- Comply with federal and state laws such as the National Environmental Policy Act (NEPA) of 1969, the Endangered Species Act, Clean Water Act, Clean Air Act, National Historic Preservation Act, and others that are relevant.
- Provide supporting information for the development of proposed guidelines and standards to be evaluated in the EIS that would remain in effect until the Forest Plan is revised.

In this roads analysis, it was assumed that there will be an increase in gas wells and pipelines so it was assumed that there would be no reduction in road density over the next 20 years, and road density may increase as much as double in some parts of the District to accommodate the additional 694 gas wells projected over the next 20 years. It was further assumed that the roads analysis would be based on information currently available from the District or Forest Supervisor's personnel.

All roads within the analysis area have been digitized using aerial photography taken in October of 2001. All roads that were considered for analysis are maintenance level 1 (closed for at least one year) or level 2 (suitable for high clearance vehicles and either open to the public or gated, single-purpose), or decommissioned (blocked from access). Decommissioned roads were included because they continue to affect surface resources until they have been obliterated and revegetated. Roads in the GIS coverage have been identified as either gated or open to the public.

Background

Because most activity, including road construction and maintenance, on the District is related to the development and extraction of natural gas, background is pertinent to the analysis of the roads network. Regulatory constraints that protect natural and cultural resources, as well as minerals management include the USEPA Underground Injection Control Program (40 Code of Federal Regulations [CFR] Part 144), which regulates injection wells drilled to dispose of hydrocarbon produced water; Standard Terms and Conditions imposed by the Bureau of Land Management (BLM) in conjunction with the issuance of a permit to drill a well for hydrocarbon extraction; Section 404 of the Clean Water Act (CWA); and Section 401 of the New Mexico Water Quality Act.

For the issuance of mineral licenses, permits, and leases, the Forest Service cooperates with the BLM to ensure that management goals and objectives are achieved, that impacts upon the surface are mitigated to the maximum degree possible, and that the land affected is rehabilitated. The Forest Service has no statutory responsibility for issuing and supervising lease applications and oil and gas operations, but makes recommendations to protect surface resources, plans for and provides access to Forest Service land, and works to prevent conflicts with other plans, activities, and programs of the Forest Service. The Forest Service responds to BLM proposals to issue mineral leases and permits after reviewing its land management plans. The Forest Service requires reclamation plans for all proposed surface-disturbing activities to return the land to productive uses consistent with the ecological capability of the area in accordance with land management goals.

The BLM is responsible for processing Applications for Permits to Drill (APD) and administering the minerals development programs on Forest Service lands in cooperation with the Forest Service. Responsibilities include conducting pre-drill inspections of the proposed drill sites; assessing the status of cultural and threatened or endangered species clearances; conducting compliance inspections and enforcement actions for lease terms and conditions, safety, production verification,

and site maintenance; and abandonment inspections of drilling locations. BLM regulations, orders, notices, standard conditions of approval, and general requirements constitute the range of standard procedures and environmental protection measures that are applied to individual operators and projects, as applicable, and are authorized by 43 CFR 3160. BLM Onshore Oil and Gas Orders and Notices to Lessees are applied as standard operating procedures to individual projects and operators.

A complete APD normally consists of a Surface Use Plan, Drilling Plan, evidence of bond coverage and other information that may be required by the BLM, including applicable regulations, and BLM Orders or Notices. A Surface Use Plan contains information describing the surface uses, access, water supply, well site layout, production facilities, waste disposal, and restoration/revegetation or reclamation associated with the site-specific well development proposal. The Drilling Plan typically includes information describing the technical drilling aspects of the specific proposal, including subsurface resource protection and royalty accountability. Determination of the suitability of an operator's design, construction techniques, and procedures is made by the BLM and the Forest Service during the permitting process.

Standard Conditions of Approval are augmented with special stipulations for a site-specific project whenever conditions warrant, as determined through the NEPA process. The BLM and Forest Service have developed standard mitigation measures and conditions of approval that would be applied to all future development within the Jicarilla Ranger District.

Participants in Roads Analysis Plan

Personnel who participated in this roads analysis include the staff of the District and the Carson National Forest Supervisor's office including:

- Mark Catron, District Ranger
- John Reidinger, District Lands and Minerals Staff
- Cam Hooley, Biologist
- Tom Dwyer, Project Manager
- Steve Okamoto, Forest Engineer
- David Johnson, Forest Archaeologist
- Greg Miller, Forest Soil Scientist

Science Applications International Corporation (SAIC) was contracted by the Forest Service to develop the roads analysis plan in cooperation with the Forest Service staff. Personnel from SAIC who worked on this document include the following technical specialists:

- Ellen Dietrich, Project Manager
- Sandra Doty, Engineer and WEPP Modeler
- Bonnie Carson, Minerals Engineer and Geologist
- Susan Goodan, Land Use Planner
- Charles Burt, Biologist
- David Dean, Biologist and GIS Technician
- Heather Gordon, GIS Specialist
- Neal Ackerly, Archaeologist